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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/839,139	04/23/2001	Yoshiyuki Nagai	862.C2205	1616

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EXAMINER	
LANDAU, MATTHEW C	

ART UNIT	PAPER NUMBER
2815	

DATE MAILED: 01/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/839,139	Applicant(s) NAGAI ET AL.	
	Examiner Matthew Landau	Art Unit 2815	MW

-- Th MAILING DATE of this communication appears on the cover sheet with th correspondenc address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/21/2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-33* is/are pending in the application.

4a) Of the above claim(s) *17-22 and 26-33* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-16 and 23-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *4/32/01* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

Newly submitted claims 26-33 are directed to inventions that are independent or distinct from the invention originally claimed for the following reasons:

The invention of claims 26 and 28 is a subcombination of the combination defined by claims 1 and 15. In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the combination does not require a controller for determining whether a difference between the wavelength and the target value exceeds a predetermined value. The subcombination has separate utility such as use in a laser oscillation that does not calculate a drift amount. The invention of claims 27 and 29 is a subcombination of the combination defined by claims 1 and 15. In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the combination does not require a controller for determining whether an idle time for stopping an oscillation exceeds a predetermined value. The subcombination has separate utility such as use in a laser oscillation that does not calculate a drift amount.

Claims 30-33 are merely method claims that correspond to the apparatus claims 26-29, and are therefore also independent or distinct inventions.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 26-33 withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Drawings

Figure 12 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

Claims 4 and 5 are objected to because of the following informalities: there is insufficient antecedent basis for "the oscillation wavelength change amount" and "the oscillation idle time". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4, 5, 9, 10, and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 is indefinite because it consists of process of using limitations. A claim drawn to both an apparatus and the method steps of using the apparatus is indefinite under 35 U.S.C. 112, second paragraph. See MPEP 2173.05(q)II. Note claims 5, 9, 10, and 16 have similar problems.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3, 6, 11-16, and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Everage et al (US Pat. 6,078,599, hereinafter Everage).

In regards to claims 1 and 15, Figure 4 of Everage discloses a laser oscillation apparatus comprising: wavelength change means 36 for driving a wavelength selection element (col. 3, lines 5-9) and changing an oscillation wavelength of a laser beam to a target value; calculation means 46/44 for calculating a drift amount of the oscillation wavelength generated immediately after oscillation starts (col. 4, lines 33-47); and a controller 42 for driving the wavelength selection element by said wavelength change means on the basis of the calculated drift amount (col. 4, lines 7-11 and 47-50). Note that Everage discloses the laser apparatus is used in a stepper for wafer fabrication (col. 1, lines 9-11 and col. 3, lines 13-15). Since it is used for exposure, it is inherent that the laser apparatus is part of some type of exposure apparatus.

In regards to claim 3, Everage discloses said calculation means 46/44 calculates the drift amount on the basis of an oscillation wavelength change amount (shift) of the laser beam (col. 4, lines 33-47).

In regards to claim 4, as best the examiner can ascertain, the claim limitations are merely recitations of intended use that do not structurally distinguish the claimed invention over the prior art.

In regards to claim 6, Figure 4 of Everage discloses wavelength measuring means 40 for measuring the oscillation wavelength of the laser beam.

In regards to claim 9, Everage discloses determining whether the measured oscillation wavelength of the laser beam falls within a predetermined range (0.05pm) (col.4, lines 11-15). It is considered the wavelength control signal is the wavelength lock signal.

In regards to claims 11 and 12, Everage does not disclose stopping the output of the laser beam in changing the oscillation wavelength of the laser beam, nor does Everage disclose emitting a test beam in changing the oscillation wavelength of the laser beam. The apparatus of Everage dynamically adjusts the wavelength during operation (col. 4, lines 47-50). In this type of adjustment method, there is no need to stop or test the laser output in changing the wavelength. Therefore, it is considered the apparatus of Everage reads on the claims.

In regards to claim 13, Everage disclose the wavelength selection element includes a grating (col. 3, lines 5-9).

In regards to claim 14, Everage discloses the laser beam includes an excimer laser beam (col. 2, lines 64-66).

In regards to claim 16, as best the examiner can ascertain the claimed invention, the claim limitations are merely recitations of intended use that do not structurally distinguish the claimed invention over the prior art.

In regards to claim 25, it is inherent that the calculation means 46/44 calculates a drive amount of the wavelength selection element on the basis of the target value, wherein said controller 42 drives the wavelength selection element by said wavelength change means 36 on the basis of the calculated driving amount, since the amount of movement/adjustment of the wavelength selection element must be determined in order to send the appropriate control signal.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Everage in view of Aketagawa.

As best the examiner can ascertain the claimed invention, the difference between Everage and the claimed invention is the apparatus comprises a shutter that closes when the oscillation wavelength change amount exceeds a certain threshold. Figure 2 of Aketagawa discloses a laser apparatus with a shutter 3 that closes when a wavelength of the laser 1 is outside of a desired range (i.e., exceeds a predetermined threshold) (col. 5, lines 41-59). In view of such teaching, it

would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of Everage to include the shutter of Aketagawa for the purpose of preventing damage to wafer.

Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Everage in view of Sandstrom.

In regards to claims 7 and 8, the difference between Everage and the claimed invention is the apparatus further comprises an internal environment measurement means for measuring an internal environment (temperature or pressure) of said wavelength measurement means, and said wavelength measurement means is corrected based on the measure internal environment of said wavelength measurement means. Figure 2 of Sandstrom discloses a wavelength measurement means (wavemeter) 12 that includes an internal environment measurement means (temperature sensor), wherein the wavemeter is corrected based on the temperature measurement (see abstract). In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of Everage to include the temperature compensation means of Sandstrom for the purpose of obtaining accuracy and stability in the wavelength measurement means output.

Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Everage in view of Tuganov et al. (US Pat. 6,434,173, hereinafter Tuganov).

In regards to claim 23, the difference between Everage and the claimed invention is the exposure apparatus comprises a display, a network interface, and a computer network for

executing network software. Figures 1 and 2 of Tuganov disclose a display 200, a network interface 102, and a computer network 120 for executing network software. Since network 120 is connected to computers (114,116,118), it is considered to be a computer network. In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of Everage by including the display, network interface, and computer network of Tuganov. The ordinary artisan would have been motivated to modify Everage in the manner described above for the purpose of automation and decentralized control of the exposure apparatus. Note the intended use limitation "maintenance information of the exposure apparatus can be communicated via the computer network" does not structurally distinguish the claimed invention over the prior art.

In regards to claim 24, the limitation beginning "wherein the network software..." is merely a recitation of intended use. The claim is drawn to an exposure apparatus and not a network. The limitation "external network" is not physically part of the exposure apparatus and does not further structurally define the claimed invention. Therefore, the characteristics of the external network cannot be used to patentably distinguish the claimed invention over the prior art.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew C. Landau whose telephone number is (703) 305-4396.

The examiner can normally be reached from 8:30 AM - 5:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (703) 308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

TOM THOMAS
SUPERVISORY PATENT EXAMINER

Matthew C. Landau

Examiner

January 9, 2004